Edumate™ Light Pen

ATARI compatible

futurehouse™

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LIMITED WARRANTY

All Programmers's Institute programs are warranted to load and run. If defective, return original media for free replacement within 30 days of receipt of order.

Magnetic media may not be copyable on user's system using standard copying procedure. If media wear out, Programmer's Institute will provide a new copy if the original media is returned with a $5.00 replacement fee within one year from date of purchase.

TERMS AND CONDITIONS—LIMITED WARRANTY

Programmer's Insititute shall have no liability or responsibilty to purchaser or any other person or entity with respect to any loss, liability or damage caused or alleged to be caused directly or indirectly by this product, including but not limited to any interruption of service, loss of business and anticipatory profits or consequential damages resulting from the use or operation of this product.

This product will be exchanged if defective in manufacture, labeling or packaging, but except for such replacement, the sale or subsequent use of this program material is without warranty or liability.

PLEASE NOTE:

It is important to adjust the brightness and contrast on your television/monitor for optimum light pen response. In some rare cases, a monitor will not be light pen compatible. However, the light pen will function properly with any standard television.

Atari users: If program "draw" is not compatible with your system due to the low level of background intensity, use program "draw2" in which the brightness is increased. The instructions for program "draw2" are the same as for program "draw" except for the color selections. The new selections are as follows:

KEY	COLOR
1	red-orange
2	pink
3	orange
4	yellow-green
5	green
6	turquoise
7	blue
8	purple

GENERAL INFORMATION

Congratulations! You have just purchased one of the most advanced graphics peripherals available on the home computer market! This high-resolution Edumate light pen will enable you to draw in many colors on your screen, make menu selections, enter program answers, and play games by simply touching the pen to the screen.

In addition to the FREE software that you have received with this pen, several other programs are currently available for the Edumate. We are offering an advanced draw routine which allows you to save and recall drawings to disk or cassette. You can also draw circles, squares and rectangles and fill them with color. Another feature allows you to vary the width of your "brush strokes."

Playground Software is a series of educational programs designed specially for preschool children. Each of these programs is guaranteed to delight your kids.

* Animal Crackers
* Alphabet Arcade
* Computer Crayons
* Bedtime Stories

The exciting world of computers will be no more than a touch away for your children with Playground Software and our Edumate light pen. Investing in Playground Software is an investment in your child's future. Call us at 800 334 SOFT for a complete catalog of our Edumate compatible products.

EDUMATE HINTS

Here are a few hints that will make working with your light pen easier.

1. Plug the light pen into joystick port 4.
2. To activate the light pen, hold down the [START] key on your Atari computer.
3. Never try to load DOS or any other machine language programs (ie DUP, AUTORUN) from the disk utility menu. They will cause an error if loaded.
4. Your Atari computer must have a GTIA chip or the draw routine will not work. Most Atari computers have this chip. If for some reason your computer does not have the GTIA

chip, one can easily be installed by your local Atari dealer.

EQUIPMENT REQUIREMENTS

The following equipment is needed to use the Edumate light pen and the accompanying software.

* An Atari 400 or 800 computer
* A disk drive or cassette recorder
* A television or monitor (color gives the best results)

LOADING FROM DISK

1. Make sure you have your disk drive connected to your computer.
2. Turn on your TV or monitor.
3. Place the program diskette in the disk drive.
4. Turn on the drive.
5. Turn on the computer.
6. The program will autoboot and the following Disk Pen menu should appear on your screen.

The Disk Pen
main menu

run program
disk directory
mini-dos menu
end this job

7. To run individual programs, choose the "run program" option and select the program you wish to run.

LOADING FROM CASSETTE

1. Advance the program tape to the specified line number (see below).
2. Type CLOAD and press [RETURN] twice.
3. After the program loads and the READY prompt appears, type RUN.

If you receive an ERROR 138 message while loading, advance the tape a counter or two past the indicated number. If you receive an ERROR 143 message, begin loading a counter or

two before the indicated number.

Program Names	Counter Number
Draw Routine	10
Draw2	30
Hangman	50
Checkers	114
3-D Tic Tac Toe	168
Disk Utility	217

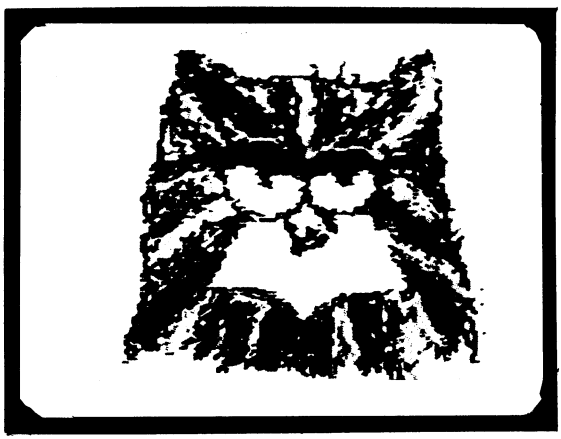
Note: The disk utility program is provided on this cassette if you upgrade to a disk drive system. The disk utility, however, will not operate with a cassette recorder.

ATARI PROGRAMS

Five free programs accompany your Edumate light pen. These programs will demonstrate the power of your new hi-res light pen. The Atari programs for the Edumate include:

Program	Disk Name
1) Draw Routine	(DRAW)
2) Disk Utility	(DISKPEN)
3) 3-D Tic Tac Toe	(TICTACTO)
4) Checkers	(CHECKERS)
5) Hangman	(HANGMAN)

The programs are, for the most part, self-explanatory. The following are brief descriptions of each program.



Draw Routine

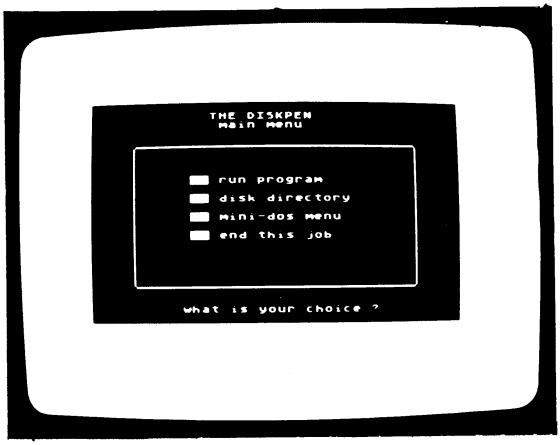
This program enables you to use your computer as an electronic sketch pad. You can draw freely on your TV or monitor in a variety of colors.

Instructions:

1. TO ACTIVATE YOUR LIGHT PEN, HOLD DOWN THIS [START] KEY WHILE DRAWING OR MAKING SCREEN SELECTIONS. THE [START] KEY ACTS AS A SWITCH FOR THE LIGHT PEN!
2. To change the color of your brush stroke, hit any of the following keys:

Key	Color	Key	Color
ESC	Light-Orange	7	Blue
1	Orange	8	Light-Blue
2	Red-Orange	9	Turquoise
3	Pink	0	Blue-Green
4	Purple	<	Green
5	Purple-Blue	>	Yellow-Green
6	Blue	BACKS	Orange-Green

3. To erase a line, hold down the [SELECT] key while touching the light pen to the screen.
4. To clear the screen, press the shifted [CLEAR] key.
5. To exit the program, hit the [SYSTEM RESET] key.



DISK UTILITY

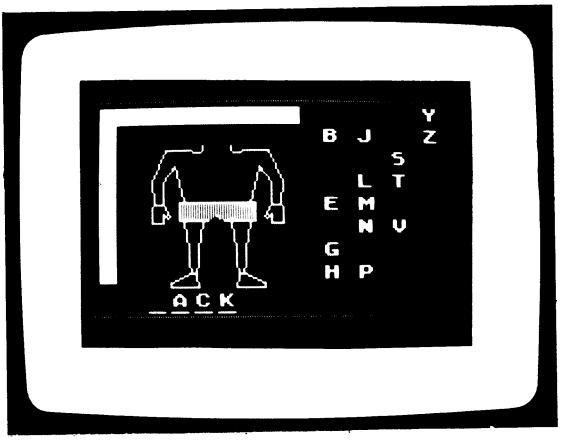
The disk utility program allows you to perform several disk-related activities.

You can "autorun" any program with the "run program" option.

A disk directory can be displayed by selecting "disk directory."

You can format disks, delete or rename files, and perform several other file maintenance functions with the "mini-dos menu" option.

Make selections by touching the pen to the screen and hitting the [START] key to activate the pen. Select "end this job" or [SYSTEM RESET] to exit the program.



Hangman

Try to guess the hidden word before the computer "hangs" you! Touch the pen to the letter you wish to choose and press the [START] key. Your letter will either appear in the word or a part of the body will be drawn. To play a new game, press the [START] key. Hit [SYSTEM RESET] to exit the program.

TECHNICAL INFORMATION

A conventional television image is produced by a light beam (actually an electron beam which produces light when it hits the phosphorus screen) which scans the screen at a rapid rate. These horizontal scan lines, 525 in all, make up a frame which is refreshed 60 times every second. Due to the limitations of human vision, we see the rapidly moving beam as a continuous image.

Image = 525 lines/frame x 60 frames/sec

A light pen, on the other hand, is capable of detecting the high speed beam. When the beam passes the screen location where the light pen is pointed, the light pen produces a sharp electrical pulse which is transmitted to the computer. This pulse signals the computer to store two values representing the horizontal and vertical position of the light pen.

The reason the computer's resolution is not as sharp as a traditional television screen is because different computers have varied resolution on the vertical axis. Pixels on some computers might be 2 scan lines tall while others might be 3 tall. For example, the vertical resolution on the Atari is 192 lines, while the Commodore 64 is 200 lines.

PROGRAMMING

The light pen's position can be retrieved by PEEKing the horizontal and vertical light pen registers. One way to demonstrate the light pen would be to type and run the following program:

```
1 POKE 53277,0
2 POKE 53277,4
3 PENOFF=PEEK(53267)
4 IF PENOFF=1 THEN GOTO 1
5 HORIZ=PEEK(564):VERTIC=PEEK(565)
6 PRINT HORIZ, VERTIC
```

If you wish to activate the light pen under user control, you can use the [START] key as a switch. When your program requires a pen reading, you can prompt the user with the message:

"press [START] key to activate pen"

Within your program, wait for the user to press the [START] key before taking a reading by using the statement:

```
10 IF PEEK(53279)<>6 THEN 10
20 REM TAKE PEN READING
```